



# Climate Safe Infrastructure Working Group

## **Meeting 5**

Port of San Diego

3165 Pacific Hwy

San Diego, CA 92101

Wednesday, May 9, 2018

10am – 4pm

# Welcome & Introductions

## The Climate-Safe Infrastructure Working Group

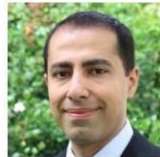
### Co-Facilitators



**Juliette Finzi Hart**  
USGS



**Susi Moser**  
Susanne Moser  
Research & Consulting



**Amir Aghakouchak**  
UC-Irvine



**Bruce Swanger**  
Cal-Trans



**Chester Widom**  
DGS, State Architect



**Cis Liban**  
L.A. Metro



**Dan Cayan**  
UC-San Diego, SIO



**David Groves**  
RAND



**Nancy Ander**  
DGS, Off. of Sustain.



**Deb Niemeier**  
UC-Davis



**James Deane**  
High-Speed Rail Auth.



**John Andrew**  
DWR



**Kristin Heinemeier**  
Realized Energy



**Kyle Meng**  
UC-Santa Barbara



**Martha Brook**  
CEC



**Noah Diffenbaugh**  
Stanford



**Gurdeep Bhattal**  
Cal-Trans



**Robert Lempert**  
RAND

### Project Team



**Keali'i Bright**  
Natural Resources  
Agency



**Elea Becker Lowe**  
Natural Resources  
Agency



**Joey Wall**  
Natural Resources  
Agency



**Guido Franco**  
California Energy  
Commission

... and YOU

# AB 2800 (Quirk): Purpose

Examine how to integrate scientific data concerning projected climate change impacts into state infrastructure engineering, including oversight, investment, design, and construction.



# AB 2800 (Quirk): Scope of Assessment and Recommendations

The working group shall consider and investigate, at a minimum, the following issues:

- (1) The current informational and institutional barriers to integrating projected climate change impacts into state infrastructure design.
- (2) The critical information that engineers responsible for infrastructure design and construction need to address climate change impacts.
- (3) How to select an appropriate engineering design for a range of future climate scenarios as related to infrastructure planning and investment.

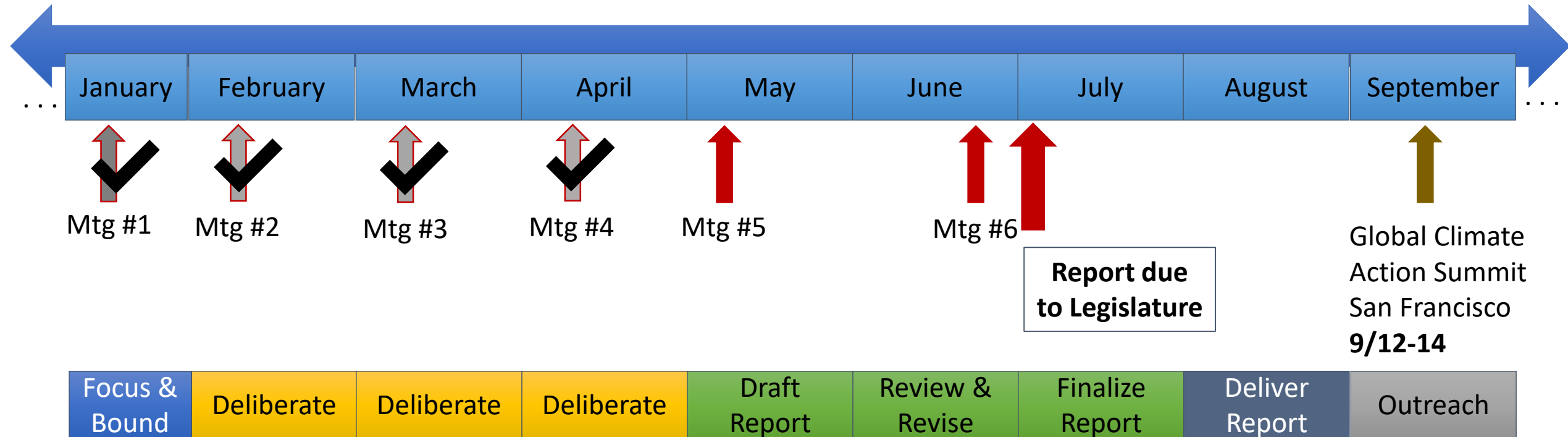
# AB 2800 (Quirk): Additional Scope of Recommendations

(A) Integrating scientific knowledge of projected climate change impacts into state infrastructure design.

(B) Addressing critical information gaps identified by the working group.

(C) A platform or process to facilitate communication between climate scientists and infrastructure engineers.

# Project Timeline

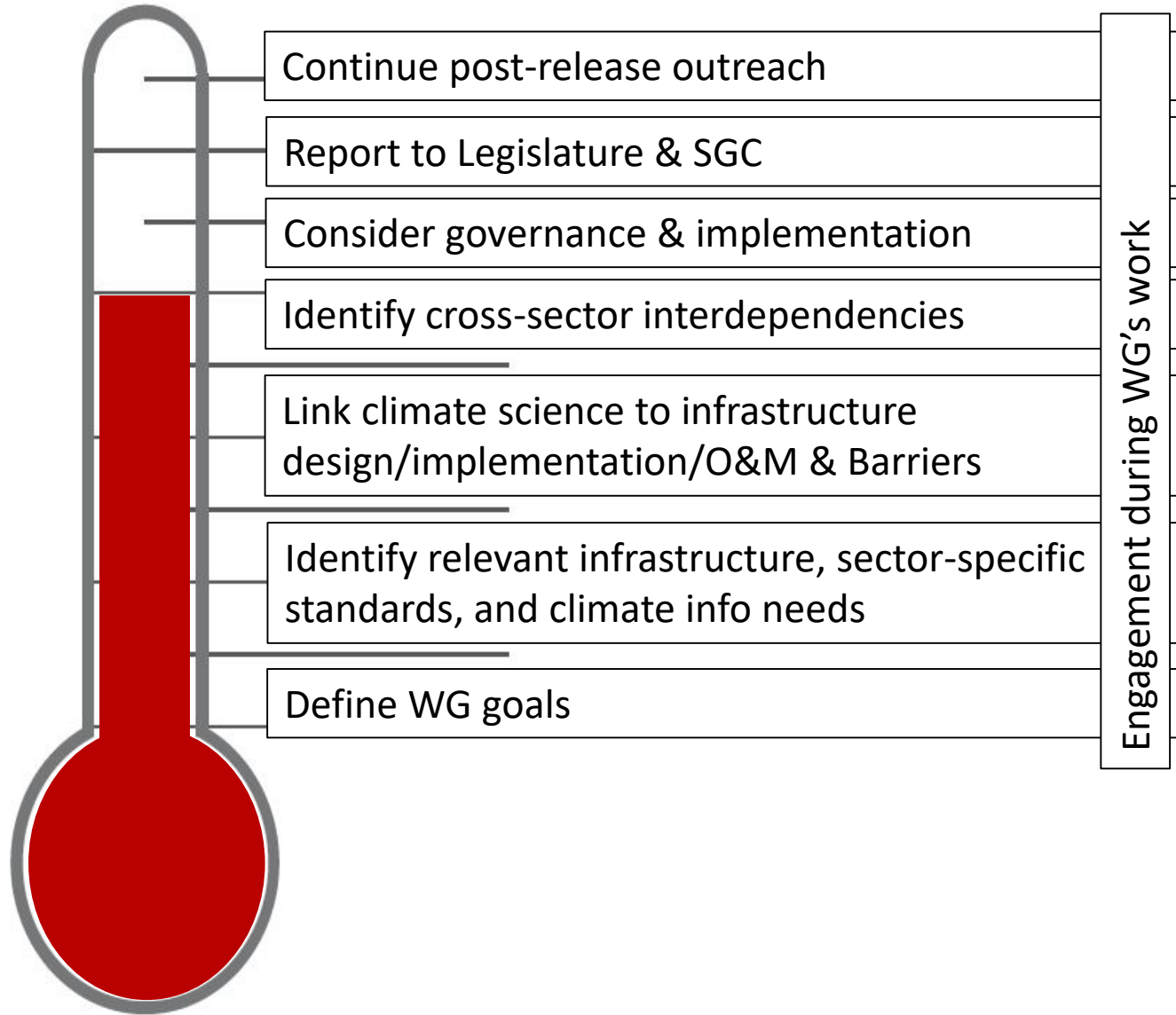


# Meeting Dates, Locations, Topics & Tasks

Mtg	Dates	Locations	Topics and Tasks
1	1/18	Sacramento	Determine project goals; WG structure and process
2	2/12	Los Angeles	Identify relevant infrastructure, sector-specific infrastructure standards, climate-sensitivity, information needs
3	3/13	San Francisco	Linking forward-looking climate science and impacts information with standards, codes, certifications throughout infrastructure life cycle, identify barriers to information use and potential ways to overcome them
4	4/11	Davis	Considering more than climate changes (land use, demographics, economy, mitigation, disasters) and cross-sector interdependencies in infrastructure design
5	5/9	San Diego	Governance of setting/changing design standards; non-standard strategies to ensure climate-safe infrastructure; tools & platform needs; deliberation of draft report; agree on refinement needs
6	6/20	Sacramento/ Davis	Agree on final report revisions; delivery and outreach/promotion; project debrief

# Measuring Progress

AAAS 2019  
Session  
submitted



# The Arc of Our Work to Date

- Scoping
- Process

## Meeting 1

- Identify, prioritize climate-sensitive infrastructure;
- Agree on definitions
- Prioritize relevant standards, codes, guidelines
- Identify information needs

- Connect engineers' information needs with climate science;
- Identify barriers to information use, solutions
- Work through concrete examples

- Consider comprehensive approaches to climate-safe infrastructure that integrate...
  - Land use change
  - Ecol., econ., demogr. data
  - Disaster recovery
  - Interdependencies

- Understand governance challenges
- Assess tools, platforms and processes to support science-engineering interaction
- Deliberate report & recommendations

## Meeting 2

## Meeting 3

## Meeting 4

## Meeting 5

- Report refinement, approval

## Meeting 6

# Agenda Overview

Time	Agenda Item
10:00-10:30am	Welcome, Intros, Status Report
10:30-11:30am	Governance Panel
11:30am-12:00pm	Review and Gap-filling: Barriers to Using Forward-Looking Climate Science in Infrastructure Design, Construction and Operation
12:00-1:00pm	Lunch
1:00-2:00pm	Assess Tools, Platforms and Processes to Support Science-Engineering Interaction
2:00-2:15pm	Report draft: Review of Status and Gaps
2:15-3:00pm	Report draft: Deliberation of Recommendations
3:00-3:45pm	Report draft: Implementation Steps
3:45-4:00pm	Wrap-up: Review, Next Steps
4:00pm	Adjourn

# Tasks for Meeting #5:

- **Task 1:** Gain fuller understanding of governance challenges regarding changing & implementing forward-looking infrastructure standards
- **Task 2:** Assess tools, platforms and processes to facilitate communication between engineers/architects and scientists
- **Task 3:** Review status of report, fill gaps, refine selected elements
- **Task 4:** Work toward agreement on report recommendations and implementation steps



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# Governance Challenges

## **Governance –**

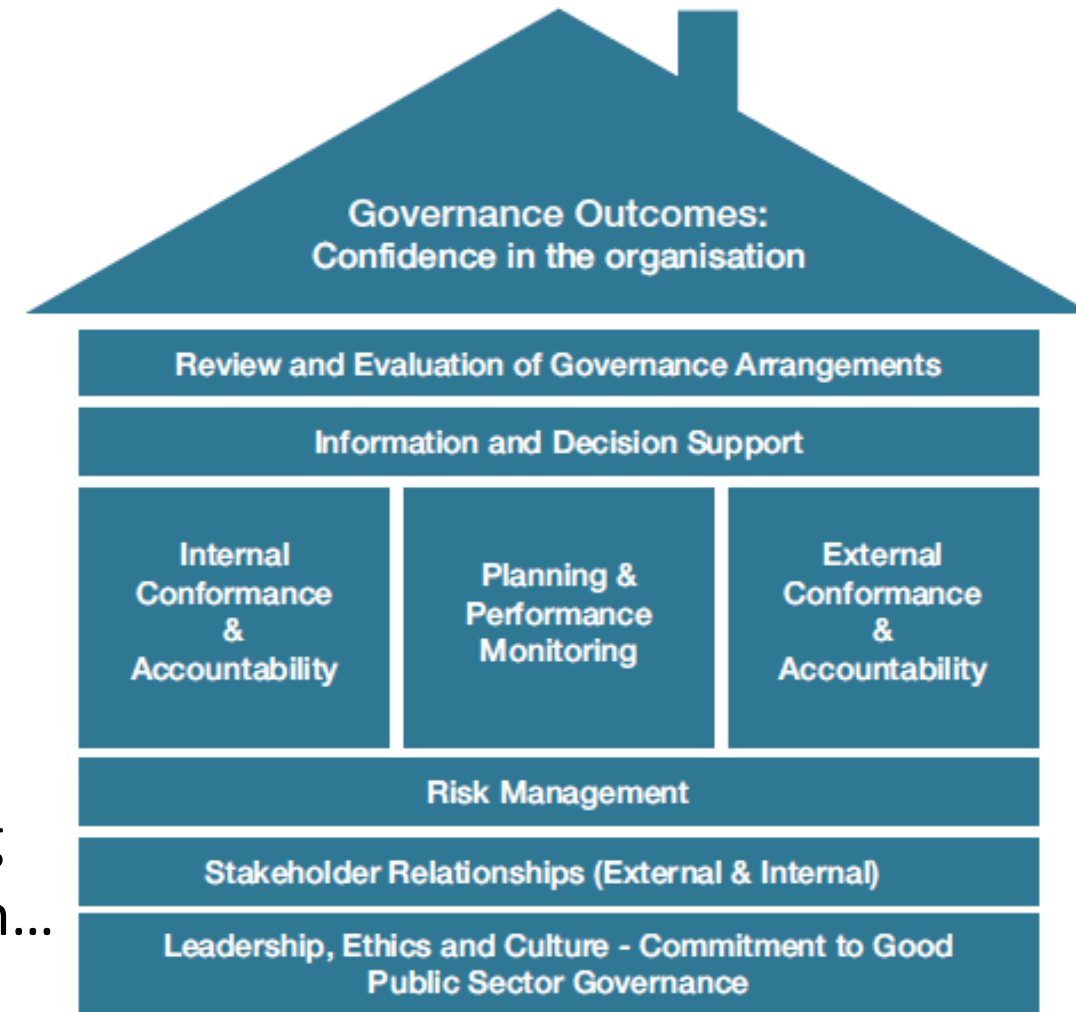
The use of institutions, statues of authority, and collaboration to allocate resources and coordinate or control activity within a project, program, or portfolio.

Source: CA Office of System Integration, Best Practices

## **Governance –**

The processes of interaction and decision-making among the actors involved in a collective problem...

Source: Hufty (2011)



# Some Questions About Governance: Infrastructure Planning, Construction, Operation

- Coordination Challenges?
  - Within levels of government
  - Across levels of government
  - Beyond government
- Prioritization?
- Inst. Overlaps and Gaps?
- Alignment?
- Formal/Informal Structures?
- Oversight?
- Capacities?
- Communication?
- Rights, Roles and Responsibilities?
- Decision-making authority?
- Public engagement opportunities?
- Clarity and Transparency?
- Compliance?
- Accountability?
- Organizational Culture(s)?
- Resource Allocation?
- Performance?

# Our Governance Panel



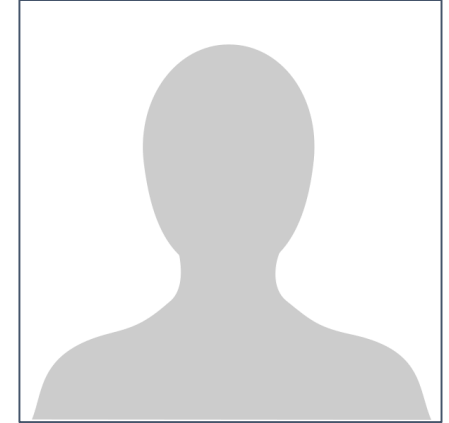
Phil Gibbons  
Port of San Diego



Cody Hooven  
City of San Diego



Ralph Redman  
San Diego Airport



Someone Fabulous  
Greater San Diego Region

# Opportunity for Public Comment



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# Barriers: Review and Filling Gaps

Phase	Stage	Types of Barriers							
		Informational/ knowledge	Human capacity	Attitudinal	Political	Financial	Legal/ regulatory	Institutional	Other
Understanding	Just beginning to become aware of CC								
	Gathering info to better assess risks								
	Completed an assessment of issue								
Planning	Brainstorming range of options to adapt								
	Completed assessment of potential options								
	Selected a subset of response options								
Managing	Begun implement-ting options								
	Monitoring performance of actions								
	Evaluating and reassessing risks and options								

# Opportunity for Public Comment



# Lunch



12:00-1:00pm

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# Tools, Platforms, Processes:

## Helping Scientists and Engineers/Architects Interact More Easily



# Opportunity for Public Comment



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# Status of Report Draft

Sections	Status Assessment
Executive Summary	To be developed last
Section 1: Introduction	Status presented @ meeting
Section 2: Climate Change and Infrastructure – the Challenge	Status presented @ meeting
Section 3: Vision for Climate-Safe Infrastructure	Status presented @ meeting
Section 4: Approaches to Building Climate-Safe Infrastructure <ul style="list-style-type: none"><li>- Background/context</li><li>- Closing knowledge gaps</li><li>- Tools and platforms</li><li>- Changing Standards</li><li>- Non-standards based approaches</li><li>- Overcoming barriers</li></ul>	Status presented @ meeting
Section 5: Summary of Recommendations	To be discussed @ meeting
Section 6: Implementation of Recommendations	To be discussed @ meeting
Appendices	Status presented @ meeting

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# Deliberating on Recommendations



# Working with a Wide Range of Recommendations



Turning your “ingredients” .....



..... into a tasty, well-rounded meal

# Opportunity for Public Comment



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# Making It Happen – Making It Real



# Opportunity for Public Comment



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# Review of the Day

Project  
status  
review

Governance  
challenges

Barriers:  
review and  
filling gaps

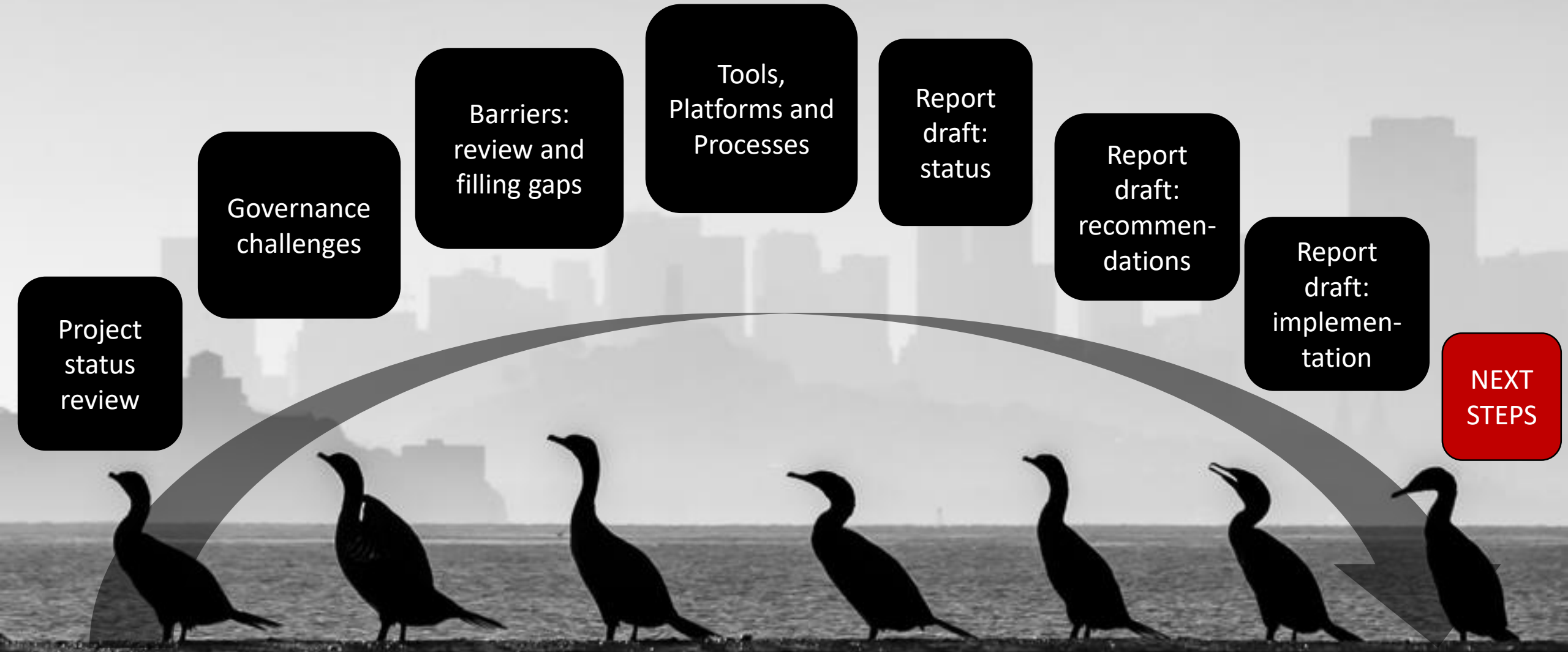
Tools,  
Platforms and  
Processes

Report  
draft:  
status

Report  
draft:  
recommen-  
dations

Report  
draft:  
implemen-  
tation

NEXT  
STEPS



# Reminder: Our Webinar Series

## *Inaugural Webinar:* Setting the Standards and Context: Federal to Local Roles



**Mike Sanio** | Director of Sustainability  
American Society of Civil Engineers



**Kathryn Wright** | Senior Associate  
Meister Consultants Group/Cadmus Group



**Peter Adams** | Senior Policy Advisor  
NYC Mayor's Office of Recovery and Resiliency

## Introduction

## *Today's Webinar:* Forward-Looking Climate Science for Use in Infrastructure Engineering: Possibilities and Limits



**Dan Cayan, Ph.D.** | Researcher | Climate-Safe  
Infrastructure Working Group Member  
Scripps Institution of Oceanography

**Patrick Barnard, Ph.D.** | Research Geologist  
USGS Pacific Coastal & Marine Science Center

**Nicolas Luco, Ph.D.** | Research Structural  
Engineer | USGS Geologic Hazards Team

**Morgan Page, Ph.D.** | Geophysicist  
USGS Earthquake Science Center



## Climate Science

## Mobilizing the Future: Infrastructure Challenges and Opportunities in the Transportation Sector



**Gurdeep Bhattal**  
CalTrans



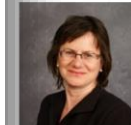
**James Deane**  
High-Speed Rail Authority



**Cris Liban**  
LA Metro

## Transportation

## Rushing toward the Future: Infrastructure Challenges and Opportunities in the WATER Sector



**Kate White, Ph.D., P.E.**  
Lead, Climate Preparedness  
and Resilience Community  
of Practice  
US Army Corps of Engineers



**Amir Aghakouchak, Ph.D., P.E.**  
UC-Irvine



**Andrew Schwarz, P.E.**  
Dept. of Water Resources

## Water

## Green Infrastructure: Design and Integration for Climate-Safe Communities



**Maya Hayden, Ph.D.**  
Point Blue



**Jeff Odey**  
American Rivers



**Tina Hodges**  
US Department of Transportation  
Federal Highway Administration

## Green Infrastructure

## Governing Infrastructure: How Regulations, Standards, Codes and Guidelines Are Set and Changed



**Ira Feldman**  
GHGM Adaptation Leader  
Adaptation Coordinator, ISO  
President & Senior Counsel,  
Greentrack Strategies  
Founder, Climate Adaptation Scholars™



**J. Alfredo Gomez**  
US Government Accountability  
Office



**Stephen A. Cauffman**  
National Institute of Standards  
and Technology

## Governance

## Energizing the Future: Challenges & Opportunities in the Building/Energy Sector



**Nancy Ander**  
CSIWG Member  
CA Dept. General Services



**Tom Wells**  
CA Dept General Services



**Guido Franco**  
CSIWG Project Team  
CA Energy Commission



**Martha Brook**  
CSIWG Member  
CA Energy Commission



**Kristin Heinemeier**  
Realized Energy

## Energy

Presentations, Recordings and Q&A Available at: <http://resources.ca.gov/climate/climate-safe-infrastructure-working-group/>

# Upcoming Webinars: May

## **Building the Future: Infrastructure Challenges and Opportunities in the BUILDING Sector**

Speakers: California DGS, USGBC, FLASH, **May 15**

## **Infrastructure Financing: Innovative Instruments, Approaches and Partnerships**

Speakers: re:focus partners, International Resilience Center, Harvard U., **May 17**

## **Making the Case for Climate-Safe Infrastructure: Advances in economic assessment approaches**

Speakers: Verea Group, FEMA, others TBD), **Date TBD (end of May)**

# Next Steps

## We Will

- Continue webinar series
- Prepare meeting summary notes
- Prepare Meeting #6 (Davis)
- Send draft to WG for review
- [to be added over the course of the CSIWG meeting]
- 
- 

## You Will

- Send in travel receipts
- Make travel arrangements for May meeting (Sacramento/Davis)
- Attend and contribute to Webinar series
- Complete writing assignments, review draft
- [to be added over the course of the CSIWG meeting]
-

# Be in touch!

- To sign up to the Climate-Safe Infrastructure listserv...
- To stay up to date on CSIWG developments...
- To ask questions or send comments...

Email: Elea Becker-Lowe at [Elea.Beckerlowe@resources.ca.gov](mailto:Elea.Beckerlowe@resources.ca.gov) or at [climatesafeinfrastructure@resources.ca.gov](mailto:climatesafeinfrastructure@resources.ca.gov)

... and she will direct the inquiry accordingly.



Meeting #3 of the Climate-Safe Infrastructure Working Group • San Diego • May 9, 2018

*Toward  
Climate-  
Safe  
Infrastructure*



Thank you!